

U.S. Serial No. 10/805,825

REMARKS

This Response is submitted in response to the non-final Office Action dated December 14, 2005. Claims 1-12 are currently pending in this application. Claims 13-32 have been withdrawn. Claim 1 is independent. Claim 1 is amended to more particularly recite the claimed invention. Claim 6 is amended to correct its form.

The Office Action objects to claim 6 because "the space" lacks antecedent basis. Applicant has amended claim 6 to recite "a space", thereby obviating the rejection.

Rejection Under 35 U.S.C. § 103(a)

Claims 1-12 are rejected as being unpatentable over Murali, U.S. Patent No. 6,788,836 ("Murali") in view of Aoki et al. U.S. Patent No. 6,236,786 ("Aoki").

The present invention provides structures and methods of manufacturing structures for providing optical connections between spaced-apart, opposing surfaces of substrates having optically active areas. In particular, an optical polymer layer is provided between opposing surfaces of a substrate and component or between two substrates to allow optical signals to pass therebetween and to bond the opposing surfaces. A polymer layer is positioned between the first and second substrates, and a waveguide is disposed within the polymer layer between the first and second optically active areas on the first and second surfaces.

Independent claim 1 recites that the first and second surfaces, of the first and second substrates, respectively, are positioned in an opposing spaced apart relationship. In addition, claim 1 has been amended to recite a polymer layer disposed between the first and second substrates, wherein the waveguide is disposed within the polymer layer between the first and second optically active areas on the first and second surfaces.

Murali is directed to a multi-level waveguide to transmit light through a series of substrates, wherein the multi-level waveguide is comprised of stacked substrates containing a two dimensional array of transparent material filled vias to provide a pathway for light. The Office Action sets forth that Murali discloses "a first substrate 2 having a first surface including at least one first optically active area 30 (semiconductor VCSEL); a second substrate 100 having a second surface in opposing spaced apart relationship from said first surface". However, as illustrated in FIG. 11 of Murali, the first substrate 2 and second substrate 100 are not disposed in a spaced apart relationship. Moreover, Murali does not teach a polymer layer disposed between

U.S. Serial No. 10/805,825

the first and second substrates, as required by independent claim 1. Furthermore, Murali's waveguide 3 is not disposed within a polymer layer between first and second optically active areas. Aoki fails to cure the above-identified deficiencies of Murali.

Aoki discloses a substrate with an optical waveguide having a through hole and two sides, a first optical waveguide defined in the through hole of the substrate to linearly extend between both sides of the substrate, a second optical waveguide, and direction changing means for changing a transmitting direction of a light signal from either one of the first and second optical waveguides to the other. However, Aoki's polymer core 4 is not disposed between a pair of substrates, and none of the waveguides 2, 7 are disposed within the polymer core 4 between first and second optically active areas. For at least these reasons, Aoki fails to cure the deficiencies of Murali.

In view of the above, it is respectfully submitted that Murali in view of Aoki fails to render obvious independent claim 1 of Applicant's invention. Claims 2-12 are not obvious over Murali in view of Aoki by virtue of their dependence from claim 1.

U.S. Serial No. 10/805,825

Conclusion

Based on the foregoing, favorable reconsideration and allowance of claims 1-12 is solicited. If necessary, the Commissioner is hereby authorized in this and concurrent replies to charge payment (or credit any overpayment) to Deposit Account No. 19-1853 for any additional required fees.

Respectfully submitted,

Date: June 12, 2006

  
\_\_\_\_\_  
David E. Heisey  
Attorney for Applicant(s)  
Reg. No. 42,651  
c/o SHEPPARD MULLIN RICHTER &  
HAMPTON LLP  
12544 High Bluff Drive, Suite 300  
San Diego, California 92130-3051  
Telephone No.: (858) 720-8936  
Facsimile No.: (858) 509-3691